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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/804,585	03/12/2001	Gregory Agami	CE08685R	1895
22917	7590	05/05/2004	EXAMINER	
MOTOROLA, INC. 1303 EAST ALGONQUIN ROAD IL01/3RD SCHAUMBURG, IL 60196			DEPPE, BETSY LEE	
			ART UNIT	PAPER NUMBER
			2634	3

DATE MAILED: 05/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/804,585

Applicant(s)

AGAMI ET AL.

Examiner

Betsy L. Deppe

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-11, 1417, and 18 is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-8 is/are rejected.
- 7) ☒ Claim(s) 5, 12, 13, 15, 16 and 19 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 March 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

DETAILED ACTION

Drawings

1. The drawings are objected to because in Figure 4, three occurrences of "EVEV" should be "EVEN" and the numerous occurrences of "|| i" should be "|i|" for clarification of the absolute value. Furthermore, for some of the inputs to the multiplexers, the number "1" should be used instead of "|" for clarification. For example, for multiplexer 446, "| + || i" should be "1 + |i|" (see page 11, line 3). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 300, 302, 304, 306, and 308 on page 7, lines 25-26. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because of the following informalities:
on page 14, lines 14, 16 and 18, "I" should be "i" in order to be consistent with page 14, line 9 and Figure 4;

on page 9, line 28; page 10, line 14; and page 14, lines 7, 10, and 12, "twos" should be "two's". Appropriate correction is required.

Claim Objections

4. The claims are objected to because of the following informalities:
 - a. in claim 1, line 10, the Examiner suggests changing "through" to "and using" for clarification;
 - b. in claim 3, lines 5-7, "wherein the two predetermined bits have opposing values for symbols on respective opposing sides of the horizontal and vertical axes" should be "wherein each of the two predetermined bits has opposing values on opposing sides of the horizontal or vertical axes" in order for the claim limitation to be consistent with Figure 3 and page 8, lines 12-14;
 - c. in claim 4, "another" on line 3 should be "an" and "significant" on line 4 should be deleted;
 - d. in claim 5, "the symbol value" on line 1 should be "the demodulated symbol" and "twos" on lines 2 and 6 should be "two's";
 - e. in claim 7, "M" is not defined;
 - f. in claim 12, lines 5-7, "wherein the two predetermined bits have opposing values for symbols on respective opposing sides of the horizontal and vertical axes" should be "wherein each of the two predetermined bits has opposing values on opposing sides of the horizontal or vertical axes" in order for the claim limitation to be consistent with Figure 3 and page 8, lines 12-14;

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- g. in claim 13, "another" on line 3 should be "an" and "significant" on line 4 should be deleted;
- h. in claim 15, "M" is not defined;
- i. in claim 15, "the symbol" on line 1 should be "the **demodulated** symbol" (see claim 9, line 4) and "and is modulated according to a M-ary Quadrature Amplitude Modulation scheme" on lines 2-3 should be deleted because it duplicates claim 9, lines 4-5; and
- j. in claim 19, line 2, "twos" should be "two's."

Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-4 and 6-8 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Ramesh (US Patent No. 6,078,626 cited in the IDS filed 07 April 2004, Paper No. 2). (See the abstract; Figure 2; column 2, line 57 - column 3, line 17; and column 4, line 46 - column 6, line 61)

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7. Claims 1-4 and 6-8 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Sindhushayana (US Patent No. 6,594,318 B1). (See Figure 11; column 18, line 17 - column 19, line 38; column 19, line 59 - column 20, line 60; and column 22, line 36 - column 23, line 33)

Allowable Subject Matter

8. Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. Claims 9-19 are allowed.

10. The following is a statement of reasons for the indication of allowable subject matter: with regard to claim 5, prior art of record does not teach or suggests in combination a method of calculating a log-likelihood ratio wherein the demodulated symbol is formatted as a two's complement having a sign bit, one or more integer bits and one or more fractional bits wherein the log-likelihood ratio is calculated using the conditions recited in claim 5, lines 4-19; and with regard to claims 9-19, prior art of record does not teach or suggests in combination an apparatus for determining a log-likelihood ratio comprised of a combinatorial logic, a plurality of first additive devices, a plurality of multiplexers, a plurality of squaring blocks, and a plurality of second additive devices as recited in claim 9.

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Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Gerlach et al. (US Patent No. 6,499,128 B1) discloses using Euclidean distances to determine a log-likelihood ratio.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Betsy L. Deppe whose telephone number is (703) 305-4960. The examiner can normally be reached on Monday, Tuesday and Thursday (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (703) 305-4714. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Betsy L. Deppe
Primary Examiner
Art Unit 2634